

## CLAIMS

1. A method of preventing or delaying the onset of a disease having the characteristics of type 1 diabetes or of ameliorating an early stage thereof in a mammal at risk of developing said disease which method comprises administering to said mammal an effective amount of a hormonally inactive insulin or insulin analogue.
2. The method of claim 1 wherein the mammal is a human being.
3. The method of claim 1 wherein the *in vitro* activity of the insulin or insulin analogue is less than 7% of the activity of human insulin.
4. The method of claim 1 wherein the insulin analogue is selected from the group comprising:
- desA1 human insulin;
  - des(A1-A2) human insulin;
  - des(A1-A3) human insulin;
  - desA21 human insulin;
  - des(B1-B5) human insulin;
  - des(B1-B6) human insulin;
  - des(B23-B30) human insulin;
  - des(B24-B30) human insulin;
  - des(B25-B30) human insulin;
  - Gly<sup>A2</sup> human insulin;
  - Ala<sup>A2</sup> human insulin;
  - Nle<sup>A2</sup> human insulin;
  - Thr<sup>A2</sup> human insulin;
  - Pro<sup>A2</sup> human insulin;
  - D-allo Ile<sup>A2</sup> human insulin;
  - Nva<sup>A3</sup> human insulin;
  - Nle<sup>A3</sup> human insulin;
  - Leu<sup>A3</sup> human insulin;
  - Val<sup>A2</sup>, Ile<sup>A3</sup> human insulin;

- Abu<sup>A2</sup>, Abu<sup>A3</sup> human insulin;  
Gly<sup>A2</sup>, Gly<sup>A3</sup> human insulin;  
D-Cys<sup>A6</sup> human insulin;  
D-Cys<sup>A6</sup>, D-Cys<sup>A11</sup> human insulin;  
5 Ser<sup>A6</sup>, Ser<sup>A11</sup>, des (A8-A10) human insulin  
D-Cys<sup>A7</sup> human insulin;  
D-Cys<sup>A11</sup> human insulin;  
Leu<sup>A19</sup> human insulin;  
Gly<sup>B6</sup> human insulin;  
10 Glu<sup>B12</sup> human insulin;  
Asn<sup>B12</sup> human insulin;  
Phe<sup>B12</sup> human insulin;  
D-Ala<sup>B12</sup> human insulin; and  
Asp<sup>B25</sup> human insulin.  
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5. The method of claim 4, wherein the insulin analogue is  
Asp<sup>B25</sup> human insulin.
6. A pharmaceutical composition for preventing or delaying  
20 the onset of a disease having the characteristics of type 1  
diabetes or for ameliorating an early stage thereof in a  
mammal at risk of developing said disease which composition  
comprises an effective amount of a hormonally inactive  
insulin or insulin analogue according to any one of the  
25 claims 1 and 2 to 5.
7. Use of an insulin or an insulin analogue according to any  
one of the claims 1 and 2 to 5 for producing a  
pharmaceutical composition for preventing or delaying the  
30 onset of a disease having the characteristics of type 1  
diabetes or for ameliorating an early stage thereof in a  
mammal at risk of developing said disease.
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